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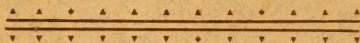


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PRIZE ▲ ▲
ESSAYS

HOW AND WHAT TO GROW IN THE SOUTH
FOR NORTHERN MARKETS

CULTURE OF CABBAGE AND ONIONS, WITH
HINTS FOR STORING AND
MARKETING.

THE FAMILY VEGETABLE GARDEN.
PREPARATION, REQUISITES, WHAT AND WHEN TO PLANT.



Published 1890,

— BY —

• • • Johnson & Stokes, Seedsmen • • •

217 & 219 Market Street,

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Publishers' Preface.

THE Essays published herewith have been selected as the best from a large number received, in response to our offer of \$100 in cash prizes for the best Practical Essays on the subjects, made in our *Garden and Farm Manual for 1890*.

We have endeavored to publish them just as written by the authors, to whom the prizes were awarded, and, while many of our customers may not agree entirely with the writers in all their methods of culture, etc., it must be remembered that they are in widely diversified sections of our immense country, where climate, soils and customs may be different from their own particular location.

We hope that all who read these Essays will be fully repaid for their trouble, and that some new ideas may be gained to assist them in their gardening operations.

To add to the interest of the book we have inserted illustrations of many of the leading varieties recommended by the authors as those with which they have had experience.

JOHNSON & STOKES,

SEED GROWERS.

SEED WAREHOUSES,
217 and 219 Market Street,
206 and 208 Church Street,
PHILADELPHIA, PA.



HOW AND WHAT TO GROW IN THE SOUTH FOR NORTHERN MARKETS.

PRIZE ESSAY BY J. E. RUE, LITTLETON, N. C.

There are many points to be taken into consideration in the above subject, much more so than the casual observer would think at first sight. In the first place, the territory is immense, reaching from the northern border of Virginia to the southern border of Florida and Texas; from the Atlantic, on the east, over table-land and mountains far westward. This section of country is an agricultural section, as compared with New England, which is a manufacturing section. The population is not dense, land is low in price, the non-producer is not sufficient to take the surplus of the field and garden, hence the importance of the above subject. The soil yields wonderfully under genial rains and warm sunshine, for the amount of fertilizing material, the cultivation given, and the judgment and skill displayed in managing any particular farm or garden crop.

I will mention some of the advantages the Southern agriculturist has over his snow and ice-bound neighbor in the North. There is not a month in the year that ploughing cannot be done, which, of course, facilitates his work and admits of better preparation of the land and allows him to extend his field of operation. Many crops can be sown or planted in the fall, which would not succeed at all in the North. Transportation facilities have been very much improved, rates of freight lowered, through fast trains run to Northern markets, to carry perishable vegetables and fruit, with refrigerator cars where necessary; in fact, the Southern truck and market gardener is

much nearer the great New York and Philadelphia markets than in former years, to the great satisfaction of both sections.

Another advantage, and undoubtedly the most important of all, is the earliness which vegetables can be put in the Northern markets over that section, ranging from one to three months, according to locality.

Two crops, and sometimes three, are not an unusual thing, If plenty of plant food, vegetable matter of various kinds. manure and fertilizers are applied with a liberal hand, continual cropping is no disadvantage, but, on the contrary, the land will gradually improve under a judicious and wise system of rotation, deep ploughing and sub-soiling. A deep, rich soil will stand more drouth, more wet weather, require and cost less for cultivation, from the fact that the crop soon gets out of the way of weeds, grass, etc. Land intended for any cultivated crop should be well drained, either naturally or artificially. Land that is naturally cold after being drained can be improved in productiveness and earliness by ploughing it in small lands, and for rowed crops by bedding it up, thus acting as a drain between the rows, rendering it light and warm by absorbing the rays of the sun, and if the land gets grassy and weedy and needs freshening, the beds can be reversed just before planting time. It must be remembered that the time specified for planting any given product must be governed by the locality in which the producer resides.

The time given for the purposes of this essay refer to Northern North Carolina; those living farther South a little earlier; those living farther North a little later.

Now, as to what and how I shall plant will further engage your attention.

Asparagus is among the first vegetables that makes its appearance in the spring; like many other vegetables, it has been very much improved in earliness, size and quality, and

large quantities of this excellent and succulent vegetable find their way to the Northern markets from the South by the carload, and command high prices, from the fact that people crave something fresh and green in the spring, and no other vegetable can fully take its place.

It stands in the same relation to vegetables that strawberries do to fruit. While it has been very much improved in variety and quality, its culture has been very much simplified. From the very nature of the plant, it is apparent it requires a deep and rich soil, free from a stiff clay sub-soil.

Four to five feet rows for field culture, with horse-power, is about the proper distance, and 2 feet apart in the row to admit of free and easy cultivation.

It is a quick grower and gross feeder, and requires a liberal supply of plant food.

A heavy dressing of manure applied in the fall acts as a protection to the plant in winter and causes a quick and tender growth in the spring, so desirable in a vegetable of its nature. It being a native of salt marshes, an occasional dressing of salt is beneficial. The profits to be derived from this vegetable depends on the amount of manure applied, care and skill in cultivation, cutting, bunching, etc.

The seeds are slow to germinate, and should be soaked in warm water for 24 hours before planting, which may be done early in the spring, in rows 12 to 15 inches apart; when well up, thin out to 5 or 6 inches in the row, cultivate frequently for the first year; when one year old, the plants may be set out in trenches 4 to 5 feet apart, and 2 feet apart in the trench, spreading the roots out well and covering the crown to a depth of 4 inches of fine soil. Cultivate well for two years when the first cutting can be had. A bed of asparagus properly treated will last for 15 or 20 years, which can be said of but few, if any other, vegetables. As to varieties, *Barr's Philadelphia*

Mammoth and *Palmetto*, both of recent introduction, are among the best for cultivation in the South: the latter having originated in South Carolina. From \$3 to \$6 per dozen bunches is not an unusual price in the spring to get for the above varieties,



and large quantities are produced on small areas of land, which makes it one of the most profitable vegetables to grow in the South for the Northern market.

Beans are a crop that have been left almost exclusively to the Northern farmer, but of late are receiving more attention South. *Snap Beans* are grown at a profit for all early shipments, and before the crop near by the large Northern cities comes on the market. The wax varieties are among the best to plant. The *Improved Rust-Proof Golden Wax* presents a fine appearance, is rich, stringless and tender. While the *Improved Round-pod Valentine* is one of the earliest and most popular green-podded sorts, *Snap Beans* require a good garden soil, well prepared, to be planted in rows $2\frac{1}{2}$ feet apart and from 3 to 6 inches apart in the drill, according to variety. Plant only when danger from frost is over, and the ground warm.

Lima Beans are not so much a success in the South, one year with another, as they are further North.

The Most Profitable Beans for Market Gardeners



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**IMPROVED ROUND POD
EXTRA EARLY RED VALENTINE BEAN**

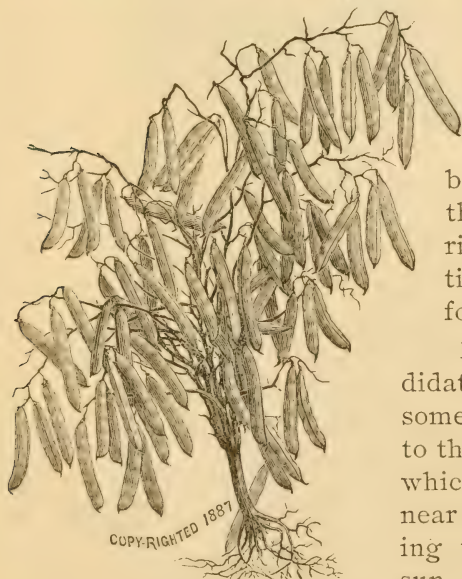
IMPROVED RUST PROOF

GOLDEN WAX BEAN

Field Beans can be raised in the South cheaper than almost any other crop. The growth is quick, the cultivation required is but little in comparison to many others. The pea bean varieties are preferable to any others, and among them the *Prolific Tree Bean* takes the lead. Land prepared the same as for cotton, with 150 to 200 pounds of fertilizers per acre, planted June 15th, in rows $2\frac{1}{2}$ feet apart, one to two beans in a hill, 15 to 18 inches apart in the drill, requiring about 4 quarts to plant an acre; with one cultivation and one ploughing is about all they need until they are ready to gather.



PROLIFIC TREE BEAN.

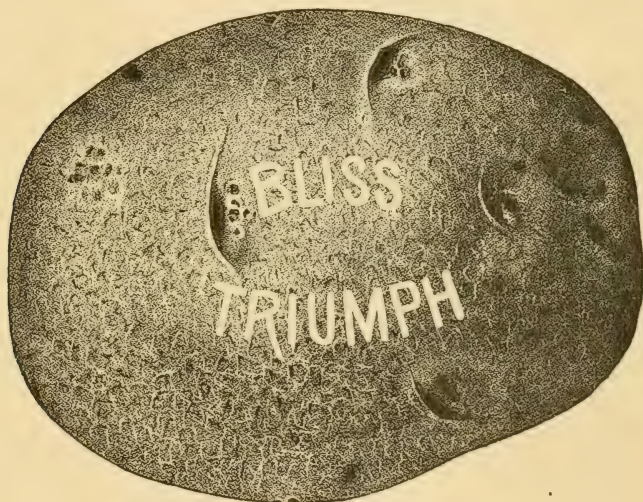


NEW SNOWFLAKE FIELD BEAN.

Northern-grown seed should always be used for planting in the South, without regard to cost. It will pay. There are other varieties, such as the kidney-shape beans, both red and white, that it would be well to experiment with in different localities to ascertain their worth for any particular locality.

The New Snowflake is a candidate for public favor that has some fine points to commend it to the agricultural world, one of which is, it drops its leaves at or near the time of maturity, exposing the fruit to the rays of the sun at a time most needed, and ripens the numerous and well-filled pods nearly all at the same time, so desirable in a bean crop.

Irish, or White Potatoes, as an early crop, after selecting the proper variety, are among the best-paying vegetables grown for Northern markets. The *Early Rose*, while looked upon by many as a played-out variety in some sections, and probably justly so, is the standard variety in the South, and in my opinion more seed potatoes of this variety come to the South every spring from Northern latitudes than all other early varieties combined. *Bliss Triumph*, which is the variety planted largely



on the Bermuda Islands for early shipment, is also being grown with profit in some of the Southern States.

The potato delights in a deep, rich loamy soil, abounding in vegetable matter, and should be planted in February or March, according to locality.

A liberal supply of manure is essential to well-developed tubers.

Commercial fertilizers, rich in ammonia phosphoric acid

and potash, applied after the crop needs its first working, at the rate of 400 pounds to the acre, equally divided as to each side of the row, have given better results than any other way. The bug is usually destroyed by one or two applications of Paris green. Potatoes treated as above will usually yield an abundant crop of fine large marketable potatoes in May or June, and release the land for other crops.

Sweet Potatoes come to perfection in the South better than any other section in the United States, and are ready for market in July and August, when I have known them to retail in the Northern markets for $8\frac{1}{2}$ cents per pound.



EXTRA EARLY CAROLINA SWEET POTATO.

All who have raised them know how they yield better than I could tell them. I know of one man in Edgecombe County, N. C., who plants as much as 30 acres in sweet

potatoes annually. Another very good market for the sweet potato is the home market. Hogs, cattle, sheep and horses are all very fond of them and eat them with a great deal of satisfaction and profit to their owners. The later varieties are better for home consumption, while the *Extra Early Carolina* is the variety to plant for early market. Medium quality land, or rather sandy with a small amount of fertilizing material and good cultivation, is about all they need to insure a good and paying crop.

Peas are a crop that have some advantage over ordinary crops in the South, in as much as they can be shipped to market

in the green state, and when prices decline below the paying point they can be used for canning purposes. The early medium growing varieties, those requiring no supports, are planted to the best advantage in field culture. *Johnson & Stokes' Extra Early Pea* is the earliest and most popular and is planted largely throughout this section every year. Another advantage

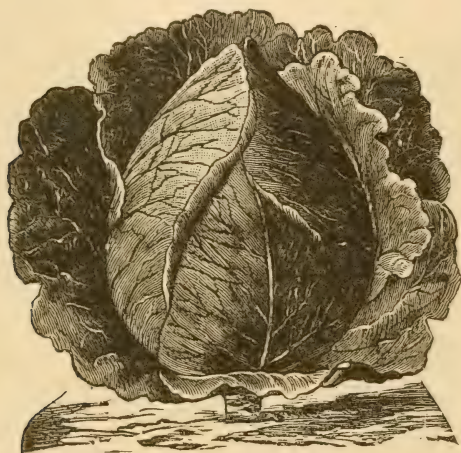


they have, so desirable to the market gardener, over many others, is, the pods all mature at about the same time and can all be gathered in one or two pickings and the land cleared and utilized for some other crop. Peas do best planted early in the season, as soon as the ground is in good working condition. Well-decomposed stable manure in the drill has a fine effect on

the very early plantings, acting as a manure and giving a gentle heat at the same time.

Commercial fertilizers will answer for the later plantings, for a succession plant every ten days after the first planting for six weeks, after which time the crop ceases to be a paying one on account of the excessive heat of summer.

Cabbages are largely grown in the South, especially the early varieties, which usually succeed better one year



NEW LARGE JERSEY WAKEFIELD.

with another than the late varieties. Sow the seed of the early varieties in October, and when large enough transplant in rows, 3 feet apart and 2 feet in the row, setting down to the first leaf so the stem will be entirely covered. The *New Large Jersey Wakefield* is considered one of the best for this purpose. The *Johnson & Stokes' Earliest* and *Market Gardener's No. 2 Cabbages* are also very highly recommended by all who have grown them.

In the South for Northern Markets.

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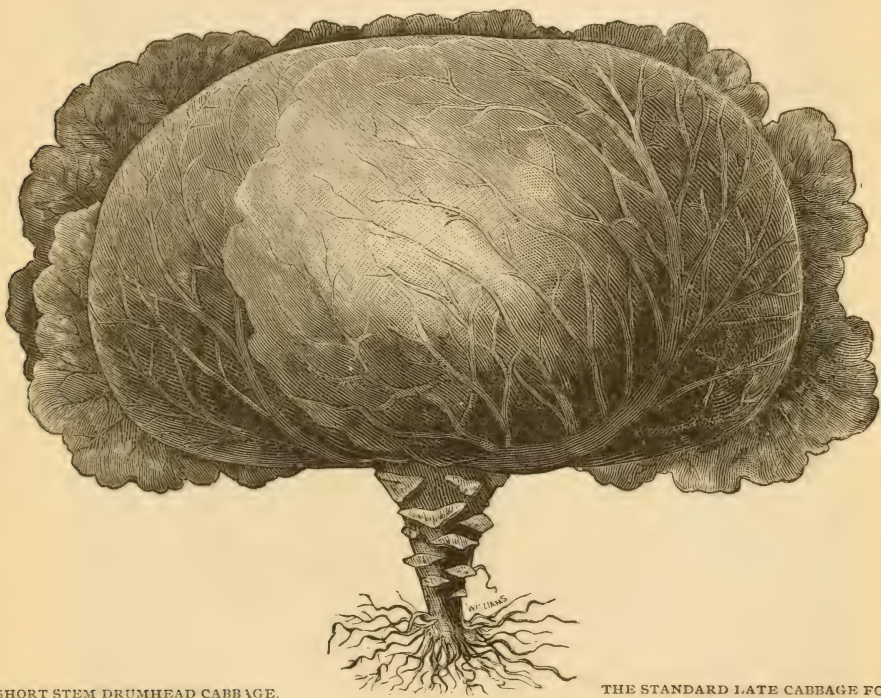
JOHN SON & STOKES' MARKET CABBAGE NO. 2
GARDENERS'

16 HEADS FILL A BARREL.

The KING of all CABBAGE
as a second early & summer
market sort, equally as good
for winter.

The Early Summer is a little later, and should be planted for second early crop.

The cabbage is a rank grower and strong feeder and requires a deep rich soil with plenty of manure, planting only one year on the same ground. An application of lime broad-



SHORT STEM DRUMHEAD CABBAGE.

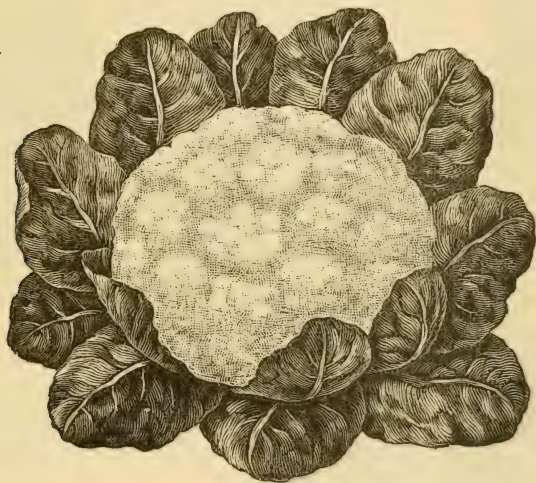
THE STANDARD LATE CABBAGE FOR
THE SOUTH.

cast is also beneficial to this crop, previous to setting out the plants and well-worked in the soil with some kind of harrow, and none are better for this that I have yet seen than the "Acme."

The *Short Stem Drumhead Cabbage* is the standard of all

late cabbages here and is usually planted in preference to any other variety. If the season is wet and not too hot, a crop of late cabbages is very often secured and proves profitable to the planter.

The Cauliflower belongs to the cabbage family, but is more difficult to grow in the South and is often attended with failure. The *Early Snowball*, however, has so far succeeded better than any other variety. Sow seed the first of October, to transplant



GILT EDGE EARLY SNOWBALL CAULIFLOWER.

in cold frames when 2 or 3 inches high; protect during the winter and transplant early in the spring to head in May and June. For spring planting, treat the same as for early cabbage.

For late crop, sow seed in June; transplant in August, cultivate thoroughly. To bleach the head, tie the leaves together with matting.

Celery requires pretty much the same conditions of soil and climate as the cauliflower. The cultivation of celery is often attended with much difficulty in a hot climate, even by experienced men. Sow the seed early in the spring in a moist place; cover the seed shallow.

On account of the slowness of the seed to germinate, a very good plan is to first burn a quantity of dry wood and brush on the seed-bed to kill any grass and weed seeds. The ashes will also be of much service to promote the growth of the young and tender plants.

Keep free from grass and

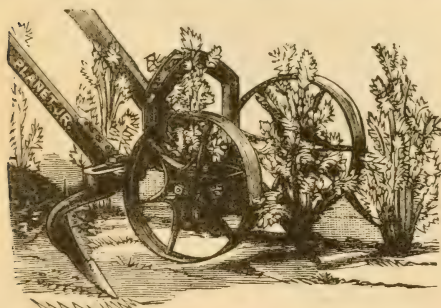


KALAMAZOO BROAD-RIBBED CELERY.



weeds, and when five or six inches high transplant to well prepared trenches, highly manured with well decomposed manure,

first wringing off the tops, which causes them to root quicker and live easier. The distance in width of rows depends on the variety planted, from $3\frac{1}{2}$ feet to 5 feet. The self-blanching varieties, such as *White Plume*, do not keep as well as the green varieties, such as *Kalamazoo* and *Golden Dwarf*, which require to be blanched by earth, being banked up to the stalks as growth proceeds.



EARTHING UP CELERY WITH A DOUBLE-WHEEL HOE.

Cucumbers succeed in the South, planted in any month after danger of frost is past, up to August. Plant in hills 5 feet

apart, giving a shovelful of manure to the hill; plant plenty of seed and thin out to 3 or 4 of the best plants, when all danger from bugs and insects is past. For pickles, plant late, giving the same treatment as for early planting. Early Frame Cucumber is one of the best general purpose cucumbers in cultivation. *Evergreen White Spine* is the great market variety. Long Green is well adapted for slicing and pickling. Nichol's

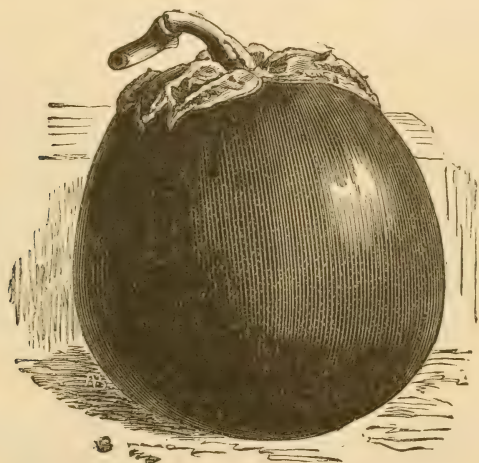


Medium Green is a very meaty and showy cucumber, and should be included in all plantings.

The *Gherkins*, or *Burr Cucumber* is used exclusively for pickling, is very productive, and a profitable variety to grow for that purpose.

Egg-plant.—This tropical vegetable is very tender when young. The seed slow to germinate, and hard to keep alive

after it is up. On account of these conditions, it should be planted in a separate hot-bed, as they require more heat than any other plant. When up about 2 inches transplant to small pots, which insure more stocky plants. When the weather becomes warm and settled, transplant in the open ground in 3 feet rows, and 30 inches in the rows, in well-prepared and manured soil; cultivate well and draw the earth up to the stalk as they advance in age and size. The potato bug is very fond of

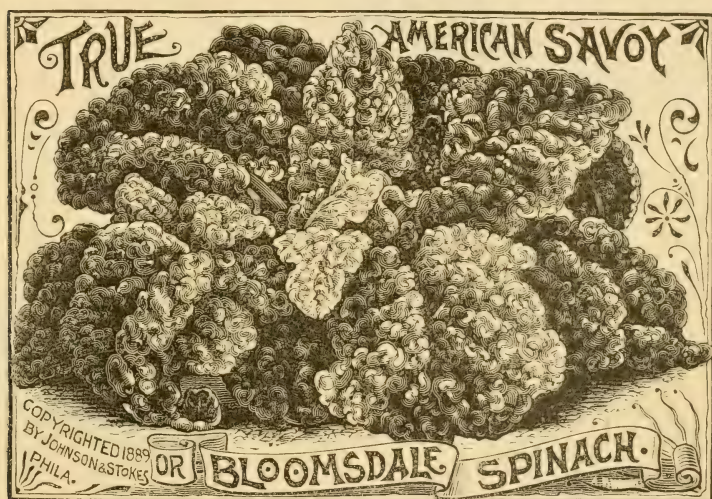


NEW JERSEY IMPROVED LARGE PURPLE EGG-PLANT.

the egg-plant, and should receive the same treatment as for Irish potatoes while the fruit is small and green. Several varieties have been offered the public, but none do so well for us here as the *Improved New Jersey Large Purple Smooth Stem Egg-plant*, either for home use or market.

Spinach is also another vegetable prized for its earliness and its easy management, coming in season before many others of its nature, and commanding good prices in the late winter and

early spring. It is capable of standing the winter South with but little or no protection. The *American Savoy* is our standard for fall sowing, being very hardy and standing handling and transportation better than other varieties. Plant in September and October, on deep soil, heavily manured, in drills 15 to 18 inches apart, thin to 6 to 8 inches in the drills, according to the richness of the soil. Keep clean of grass and weeds, which is



easily done at this season of the year. For spring planting, sow as early as the ground is in good working condition. When the weather becomes warm, it is of no use to plant spinach, as it would soon run to seed. It is packed in barrels and shipped to the Northern markets in large quantities at paying figures before the crop of that section is ready for sale, after which it would not pay to ship, and may be left for seed if wanted; if not, the land could be utilized for other crops.

Lettuce is a plant that succeeds well in the South. It requires a deep and rich soil, with plenty of manure and moisture, in order to make it grow quick, crisp and tender. It may be planted in the fall and protected in the winter in much the same way as early cabbage. It can also be sown in hot-beds in spring or winter, and transplanted when the ground is in good working condition.



LARGE WHITE RUSSIAN LETTUCE.

Plant in open ground as soon as any other hardy vegetable can be planted, in rows 12 to 15 inches apart, according to soil and vigor of variety used. The heading varieties, such as *Reichner's White Butter*, *White Russian*, *Large Passion*, and *Defiance*, are preferable to all others for the South. Thin to 6 to 10 inches in the drill. To blanch, tie the outer leaves together, which is seldom done except on a small scale.



REICHNER'S EARLY WHITE BUTTER.

Onions are grown from the black seed in the South principally from the Italian varieties. They succeed on deep rich loamy soil, highly manured, thoroughly worked, and planted on the same land every year. Onion sets planted in the fall produce edible onions very early in the spring and command high prices in Northern and city markets and hotels, and are probably the most profitable of all. The Potato Onion is also a most profitable onion to grow for field culture, vigorous, hardy, productive and a good keeper. The same conditions of soil, manure and culture, with the exception of distance that apply to other varie-

ties of onions, apply to the Potato Onion. The proper time to plant is the first of October.

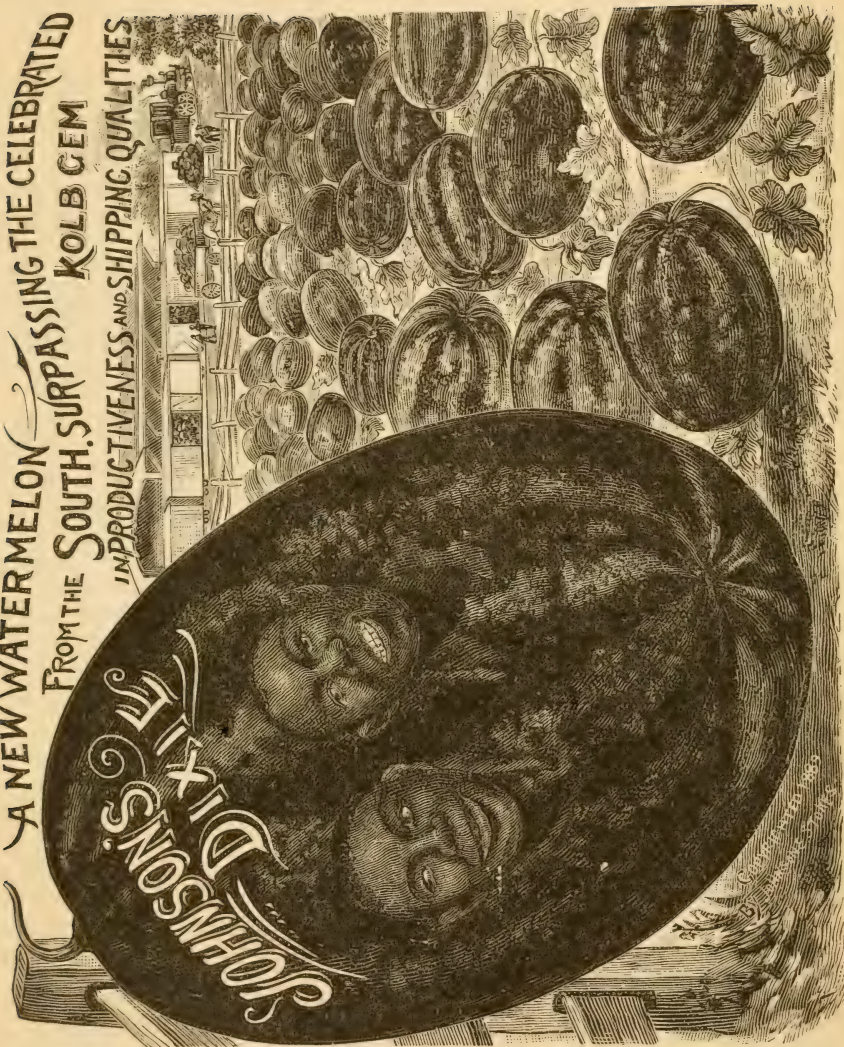
The land should be ploughed in such a manner that the water will not settle around the onions, which would cause them to rot.

Watermelons are largely grown South for Northern markets. In no section do they do better. Plant 8 to 10 feet each way in a sandy loam, putting 2 or 3 shovelfuls of manure to each hill; commercial fertilizers broadcast, at the rate of 200 pounds per acre, in connection with the manure applied in the hill, is often attended with good results and profit. Pinch off end of vines if inclined to run too much. For shipping, plant thin but tough rind varieties, such as Kolb Gem, *Christmas* and *Johnson's Dixie*. The latter is a new Southern variety, possessing great advantages over all other varieties and will probably take the place of Kolb Gem as a shipper when it becomes more generally known. Dry lime, sulphur, soot and even road-dust applied to the leaves when wet with dew will keep off bugs and insects. Use plenty of seed in planting, and when well established thin to 2 or 3 of the most vigorous vines to the hill. Plant when all danger from frost is past. The life of the vine will be prolonged by sowing field peas among the vines just before the last working; cultivate as long as the vines will admit of it. For very early, they may be planted on inverted sod in hot-bed or under glass, and set to permanent hills when the weather will admit of it.

Tomatoes succeed under certain circumstances and fail under others. Some varieties are not worth planting in the South. If planted on ordinary soil highly manured, they produce a quick growth, mature early and die. If planted on deep, rich soil without any manure, they are not so forward, but will bear until frost. Later plantings set out among cotton, corn or

A NEW WATERMELON
 FROM THE SOUTH, SURPASSING THE CELEBRATED
 KOLB GEM
 IN PRODUCTIVENESS AND SHIPPING QUALITIES

JOHNSON'S
 Dixie



tobacco give a good supply until killed by frost in the fall. The Tree Tomato is not worth planting in the South.

Dwarf Champion, while something similar to the Tree Tomato in foliage, growth and appearance, does well on account of its foliage protecting its fruit from the hot rays of the sun in summer. Livingston's Favorite is a large, smooth, round tomato, red in color, solid and a good shipper. Trophy is also a good



DWARF CHAMPION TOMATO.

tomato, and a standard late variety, well adapted to home use or for market.

There are other varieties that might be added to the list that would give equally good results as many of those mentioned above. What would succeed in one section of the South might prove a failure in another, and to ascertain that fact the different and even new varieties should be experimented with. The tomato is tender and should be so considered. Transplanting in pots has a tendency to make stocky and early plants.

For shipping purposes, select a solid, tough skin variety, gather from vines before fully ripe, handle with care and pack close in crates to prevent moving about and bruising.

I have found success in market gardening largely depends in procuring seeds direct from Northern latitudes and from firms of known and established reputation. *Cheap seeds are dear at any price.* Life is too short, competition too great, to run the risk of doubtful seeds, even if offered to you at a low price and in a beautiful chromo-lithographed package.

HOW AND WHAT TO GROW IN THE SOUTH FOR THE NORTHERN MARKETS.

PRIZE ESSAY BY JAS. MOSS, WESTMINSTER, ORANGE COUNTY, CAL.

Mr. Moss is located in Southern California, and the directions given by him will therefore apply to the extreme Southern States of the East.—PUBLISHERS.

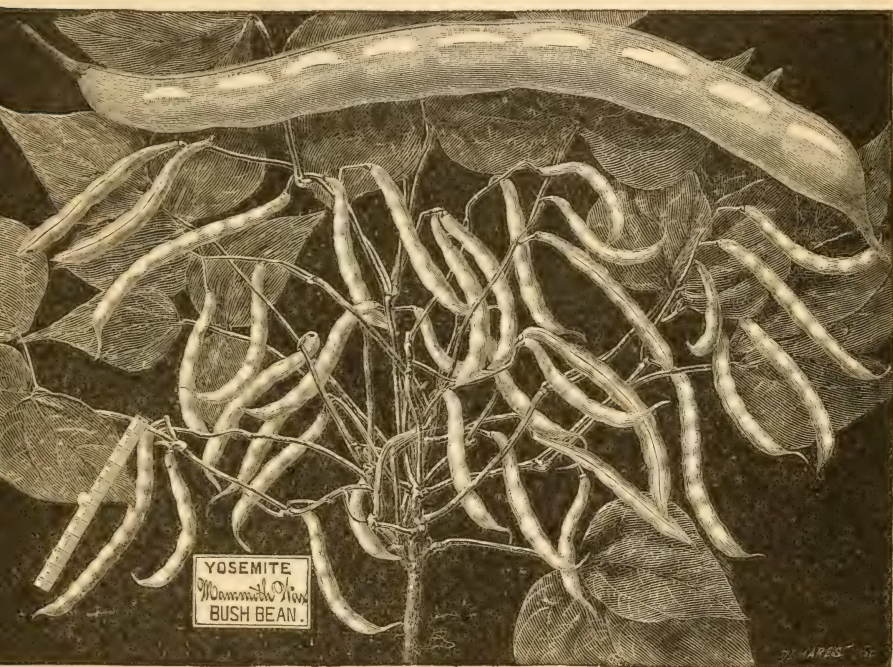
To enter fully into the above subject, embracing as it may do the cultivation and growth of fruits, vegetables, seeds, plants, etc., would require a book of many pages and volumes. Supposing, however, the subject to refer to vegetables that cannot be grown in the Northern States, or more correctly speaking, those delicate varieties which cannot, owing to climatic conditions, be grown there during the winter and early spring months, I will endeavor, from my experience as a farmer and market gardener, to give a practical account of their cultivation, etc., according to the terms specified.

Beans.—The string bean, or edible podded variety, is justly considered one of our daintiest table vegetables, and invariably finds a ready sale in the Northern markets during the winter and early spring months; large quantities of this delicious vegetable are grown in this neighborhood for shipment.

Soil.—The most suitable soil is a light sandy loam; the richer the land the better will this plant thrive and yield, and should be fertilized with a liberal dressing of good farm-yard manure.

It is most essential to have the land thoroughly well pulverized. It cannot be too much worked before sowing the seed, and these remarks are applicable to the preparation of all lands intended for vegetable culture.

Sow or drill the seed beans in shallow drills 3 feet apart, and thin out the young plants to 12 inches apart in the rows; cultivate well and often, and hill up the plants when they show signs of commencing to flower. Make the first sowing about the middle of September, and continue with successional sow-



ings until the end of February. This will insure a constant supply of shipment through the winter and spring months. The varieties of this class of bean are so numerous that it is a difficult matter to fix upon any one in particular. The Improved Round Pod Valentine is a good and prolific green pod variety, and the *Mammoth Yosemite* is a most delicious and valuable new

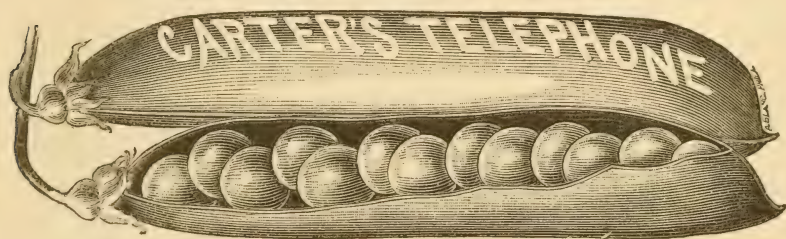
wax pod variety to grow, and commands a high price and ready sale.

Asparagus.—This delicious and world-famed vegetable is deserving of the most careful and intelligent culture. It delights in a moderately heavy loam, and the land, previous to planting, should receive a thorough and careful preparation; if ploughed should also be subsoiled to a depth of from 14 to 18 inches, and an *extensive* covering of well-decayed manure well worked in with the soil. A good plan is to grow it in beds 4 feet wide with irrigation ditches between, where such is necessary, and every season after the final cuttings are made should receive quite a heavy coating of common bay salt, for the *Asparagus* is really an alkali plant, and salt is the most effectual fertilizer. It grows to perfection on the alkali lands of the Pacific Coast without any fertilizers whatever, and is generally grown in narrow beds about 2 feet wide and 3 feet apart. Keep free from weeds and treat liberally as described, and a full crop will be insured each year. I should recommend growers to propagate this vegetable from roots; a saving of 2 years' crops will thus be effected, which will compensate one-hundredfold for the additional cost of the roots over that of the seed. The Giant varieties are decidedly the best; the *Palmetto* is a splendid plant to grow, being larger and more salable than Conover's.



Peas.—This is the real king of all vegetables, and cannot be too extensively grown. I have never known the time that I could not have sold double the crop I have ever grown.

This vegetable grows and yields most abundantly on moderately heavy land, even approaching to a clay soil; have your land well ploughed and in good condition by the middle of September, when the first sowing should be made. I have invariably grown the second early varieties in preference to the first earlys; the pods are larger and heavier and consequently pay the producer better for shipment, as it is simply a matter of a few days earlier in sowing. Drill, or, we sow the peas in rows



4 feet apart and about $\frac{1}{2}$ inch in depth; keep well cultivated and free from weeds. The pea delights in rich land, and will impoverish it almost more than any other crop; therefore, it is wise to select another piece for the next year's crop of this vegetable.

Bliss' Ever-bearing is an excellent pea; have grown most successful crops from this variety, and on account of its short, compact habit of growth is very suitable for field culture.

Carter's Stratagem is also a fine pea, and yields enormously; but in damp lands I find it more liable to mildew than other varieties.

Carter's Telephone is a splendid mammoth marrow pea,

but grows tall, 4 to 5 feet, and requires more room, and should be supported with brush wood.

The old favorite, *Yorkshire Hero*, is one of the very best peas for market gardening purposes. It is a heavy cropper, and the flavor of the peas cannot be disputed by the most critical epicure. Make successional sowings every three weeks, until the end of February, and insure a full supply all through the winter and spring months.

Tomato.—This is fast becoming a most favored vegetable to both rich and poor alike, and deserves the increasing attention paid to its cultivation; it is, however, a very delicate plant, and can only be grown in winter in the most favored localities. It thrives and produces well in any ordinarily well-cultivated soil, but I find a rather heavy soil produces the most abundant and largest tomatoes.



Sow the seed *thinly* in boxes of rich fibrous soil, mixed with about one-fourth part of *very old*, well-rotted manure, any time from September to December; a little bottom heat will hasten the growth of the young plants; this may be done by



placing the boxes or seed-pans upon a hot-bed of fresh stable manure, but care must be taken not to have the bed too hot so as to scorch the young plants; a good plan is to place about 6 inches of garden soil upon the top of the fermenting manure. When the plants are sufficiently large and strong to handle

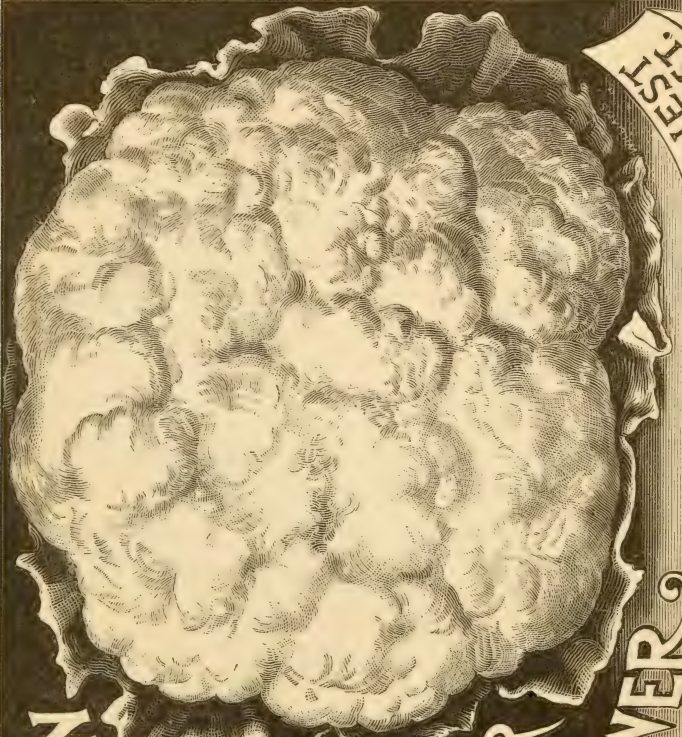
they can be carefully transplanted in rows from 3 to 4 feet apart, and 2 feet apart in the rows. It is wise to select an early and late variety, and from the accounts of all gardeners who have seen and grown the *Atlantic Prize*, as the earliest tomato, and *Brandywine*, for general crop and late, nothing can be superior to them. These two varieties have proven two of the very best that can be grown for market and shipping. The *Mikado* or *Turner Hybrid* is also a splendid late variety, growing very large and handsome fruit.

Cabbage.—This hardy and useful vegetable always makes a profitable return to the Southern farmers for its cultivation. (For full particulars of cabbage culture, see Essay "Cabbage and Onions.")

This spring the cabbages grown in this section were eagerly bought up by the packing house firms at from \$20 to \$27 per ton, packed in crates and shipped by the car-load to the North and East. My neighbor realized \$500 per acre from a 4-acre tract of cabbages.

The seed is sown in September, and transplanted into the field in the latter part of December and the early days of January. The pointed or conical-shaped cabbages are decidedly best for this purpose; their quality for table use is superior to the flat varieties. *Johnson & Stokes' Earliest Cabbage* I have found a splendid extra early variety. The *Early Jersey Wakefield* follows a week or ten days after it, and is also one that would give perfect satisfaction to the grower and consumer alike.

Cauliflower.—The cultivation of this vegetable is in all respects similar to that of the cabbage; select, of course, a heavy rich soil. *Johnson & Stokes' Early Alabaster* is a new American variety which cannot be surpassed.



**JOHNSON
& STOKES**

**EARLY
ALABASTER
CAULIFLOWER**

**"AMERICAN SEED OF AN
AMERICAN VARIETY."**

**EARLIEST
YANKEE.**

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JOHN H. STOKES

Onions.—The Southern farmers must grow an early onion in order to secure the full benefits of the Northern markets; they are shipped from here by the car-load in April and May (for full particulars of the culture of this important vegetable, see my Essay on “Cabbage and Onions”). The soil selected must be of a heavy nature; sow the seed in shallow drills, 12 or 14 inches apart, in the months of November and December;

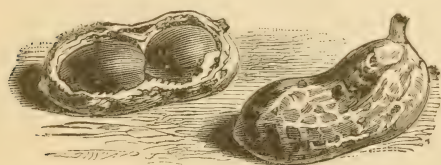


the early white varieties are the best for this purpose, and there is none better than the *Extra Early Pearl* and the *White Queen*. When the young plants are large enough to handle, thin out to 3 or 4 inches apart; keep well cultivated and free from weeds.

Potatoes.—The potato and its culture is known to all dwellers in rural districts; it seems, therefore, superfluous to

enter into particulars. It delights in a moderately light sandy or loamy soil, requires *good* land and should not be grown too long on the same soil. Land that has been well fertilized the previous year for some other crop is generally best suited to the potato. Plough and prepare the ground well, have it in proper condition, not wet, just so the soil falls away freely from the plough. Plant the seed in rows about 30 inches apart, keep clean and free from weeds and hill up the vines when strong enough for that process. For early shipment the earliest varieties should be grown. Among the best we find *Crown Jewel* to be the earliest, while *Beauty of Hebron*, *Early Rose* and *Early Ohio* follow closely after it. Plant from January to the end of February, and the crop will be ready for sale by the month of May, when they are much in demand and command excellent prices.

Ground or *Pea-Nuts* are extensively grown and never fail to make a good return. The cultivation of this plant is very simple.



GEORGIA IMPROVED GROUND PEA.

It delights in a *very* light sandy soil. Shell the nuts before planting, and drop two or three in the ground about 2 inches deep in rows about 30 inches apart and 18 inches between

the plants; keep well cultivated and free from weeds; the seed of this crop is sown any time from March to the end of April, and harvested in September and October.

Melons.—Water and muskmelons are delicate plants and liable to damage or total destruction by the slightest frosts; therefore, care must be observed in the time of planting and choice of location. A rich, very light, warm soil is most suited to their growth. The seeds are generally planted from Febru-

ary to April in rows from 6 to 8 feet apart and 3 feet between the hills; frequent cultivation and hoeing, whilst the plants are young, is necessary to keep the soil well open to the rays of the sun, as all the heat they can get is required for their early pro-



JOHNSON'S CHRISTMAS WATERMELON.

duction. Of the watermelons I would strongly recommend the *Christmas Watermelon*. It is of fine quality and firm, and the best of all for shipping purposes, whilst lovers of muskmelons will find none to equal the *Osage* and *Princess*.

In addition to the foregoing, there are many other varieties of vegetables

grown and shipped North, such as radishes, early beets, early sweet corn, peppers, cucumbers, etc., together with early fruits of such numbers and varieties that are probably not intended for inclusion in these essays.

CULTURE OF CABBAGE AND ONIONS, WITH HINTS FOR STORING AND MARKETING.

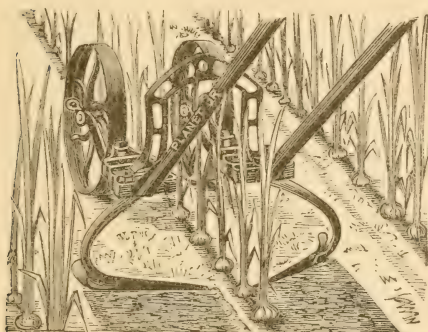
PRIZE ESSAY BY GEORGE F. ROESSLER, PHILADELPHIA, PA.

Onion Culture.—The onion is a most profitable vegetable for the farmer or market gardener to grow, because it is called for in the market every day; for where is there a good cook who would be without an onion in her pantry? Again, if there is no present demand when harvested the crop will keep for a time until there is a demand in the market for them. But to grow onions profitably a man should have soil adapted to their growth. A rich loam slightly mixed with clay is the best, and he who has this can grow onions to perfection. Other soils may yield a good crop, and fine crops are raised on well-drained black muck lands. In the Eastern States, and on the bottom lands of some of the Western States, onions are raised to perfection from seed the first year, but in the Middle and Southern States the sets are generally planted. In the former case the crop is most profitable, and where thus grown from seed, are raised in large quantities, while in Pennsylvania and New Jersey, around the large cities of Philadelphia and New York, what are raised are generally sold green or marketed during the summer or fall months. The onion requires rich soil, and there is no crop that must be manured so heavily with well-rotted manure. The manure should be prepared in the fall or winter beforehand and turned over several times to make it fine, well decomposed and fermented. A few weeks before planting time turn it over for the last time and mix in with it a peck of Peruvian guano and the same amount of coarse salt to

a cart-load of manure; let it lie in a large heap until your ground is ready; when time for planting comes plough your ground, harrow well, and just before your last harrowing spread your manure evenly at the rate of 40 or 50 cart-loads to the acre over the soil; then the last harrowing will incorporate the manure with the soil and it will be just where the roots of the onions will get the entire benefit of the manure. It will be observed from the roots of the onion that they do not extend very far down, therefore they get their sustenance from the earth near the surface, and also the atmosphere above them which comes down to them. Hence, onions grow best near the ocean, along rivers or watercourses, where the air is always moist. Onions may be grown on the same soil for a number of years without being detrimental either to the soil or crop, provided the ground is well manured every year. Of course, other crops can be grown when the onions are harvested, as it does not take the entire season for the onion to mature.

We have now mentioned the preparation of the manure and soil, also conditions of soil and climate. We think this course to pursue will answer for the entire onion-growing region, whether it be North, South, East or West, or whether he be a market gardener on a large or small scale, or only a small plot for family use. After your ground is prepared (and this should not be done until you are fully ready to plant your sets or sow your seed as the case may be), mark out two straight rows, 10 or 12 inches apart, then leave a space, from 20 to 24 inches, for the cultivator; plant or drop your sets a few inches apart in the row, cover either by hand, rake, or, if a large patch, use a cultivator; by taking out a few teeth, it can be arranged so as to cover nicely. Where the seed is sown for large bulbs adopt the same plan, sow the seed, about half an inch deep at the rate of 5 or 6 pounds to the acre by a hand-seed drill and roll; when up, thin to a few inches apart in the row. The onion

should be cultivated frequently in the early part of its growth, not very deep, and kept clean from weeds, especially from its very start. Do not allow the crop to be stunted a day on account of weeds getting the upper hand. After a shower, if the ground is getting hard, give them a hoeing, as the crust on the ground is apt to burn and scald them, particularly while young. After they have gained the mastery, they will require very little attention. In culti-



CULTIVATING ONIONS WITH THE "PLANET JR."
DOUBLE-WHEEL HOE.

vating, use a "Planet Jr." or Lees Wheel-hoe between the narrow space, and a horse-hoe in the wide space. When the tops drop over and begin to turn yellow, pull up and let them lay a day or two before topping. This allows the saccharine juice still in the tops to be absorbed by the onion. When perfectly dry, house in

a cool airy room, barn or garret, well ventilated. They may be spread over the floor, 5 or 6 inches in thickness or depth. They should be frequently looked after, and if any rotten ones appear they should be constantly removed, as they will contaminate the others; and, remember, they keep best with the thermometer just above the freezing point, and when once frozen they should not be permitted to thaw and freeze again. Onions should never be handled when in a frozen condition.

In Pennsylvania, a great number of onions are put up in ropes and sold in the Philadelphia markets. This is a little extra trouble, but pays well; for this purpose they should be topped with rather long stems. Each locality will, of course, best know how and when to dispose of their crops.

Growing Onion Sets.—Growing sets is also an important matter in the line of this vegetable. As thousands of bushels are grown near to and sold in the Philadelphia markets and elsewhere every year, therefore a few words in regard to their growth will not be out of place. The best varieties for growing sets are the Philadelphia Yellow Dutch or Strasburg, White Silver Skin and Extra Early Red. The ground for sets should be prepared in the same manner as for large onions, but need not be manured so heavily. Be sure and get the ground well harrowed and as fine as possible. Mark out irregular rows 16 inches apart. If ground is scarce or valuable, near a large city, instead



PHILADELPHIA YELLOW DUTCH ONION.



EXTRA EARLY RED ONION.

of leaving a space for cultivator, sow a row of seed, making the rows only 8 inches apart, or plant a bed of strawberries between, if such is desirable. To sow the seed we always mark out by hand with a double-tooth rake, to make a furrow $1\frac{1}{2}$ inch deep and 2 inches wide, the rows to be 10 or 12 inches apart. In these rows sow your seed thick enough to almost entirely cover the earth, 55 to 60 pounds to the acre. This may seem to some too thick, but we must consider that at least some of the seed, however good and fresh it may be, will not come through ground, others will be cut off in hoeing and some in weeding. All these things should be considered when sowing, and

extra allowance made. Then again, the seed has a better advantage in pushing through the ground, as sometimes after the seed is sown, a heavy rain may come and pack the ground, forming a crust, so that a few straggling seeds would have hard work in pushing through. They also make better sets when grown thick; they will grow up and push each other out and the weak will succumb and give place to the hardy. It is easier to hoe off a few if too thick, but if too thin nothing can be done, and they grow too large. Keep the sets well hoed but not too deep, and clean from weeds. When the tops begin to turn yellow and somewhat dry and the bulb well formed, it is time to pull them; do not leave them in the ground until the tops are entirely dried up as they will be more troublesome to pull. When left a little too long so the tops get too dry to pull easily, our Philadelphia truckers generally use an ordinary hand trowel to take them out. When taken out put on boards or hard flat ground to dry for a few days. When thoroughly dry gather them up and sieve them through a $\frac{3}{4}$ or $\frac{1}{2}$ -inch sieve, which takes out the picklers, or clean through a fan and then take them to the store-house. This should be a garret or floor on a second or third story, crates or scaffold in some outbuilding, barn or carriage-house. Spread 2 or 3 inches thick, not thicker than 3 inches. Keep the place where the sets are stored well ventilated in dry weather and cool, and if kept on slat crates they should be raised 5 or 6 inches above each other to admit a circulation of air. Occasionally give them a raking with a wooden-tooth rake. When very cold weather sets in, unless the room can be slightly warmed, cover with bags, blankets or straw; they will stand freezing, but in very severe long cold weather they must be protected to avoid freezing and thawing as much as possible, and always bear in mind never, under any circumstances, to handle onions or onion sets while in a frozen condition, as the slightest bruise when frozen will

cause them to dry out or rot. I have endeavored to give practical hints from my own experience in growing onions and sets in this short Essay. Others may know something else to suggest; but if the rules laid down here be followed, with good seed and good weather, we can raise and keep crops of onions and onion sets.

CULTURE OF CABBAGE.

Aside from the potato, possibly there is no vegetable in more demand the year round than the cabbage, unless it be



onion. The question, then, arises, How can the market gardener in the vicinity of Philadelphia or elsewhere in the same latitude, have this vegetable in stock to supply the demand at all times? The two main points in making this vegetable a profitable crop, are, how to grow and how to keep during the winter and late in spring. I may say just here, there is no crop that yields more to the acre, and which can be harvested with so little expense as the cabbage. But let no one, when he reads this, say I will plant my entire farm next year in cabbage—you

may lose as well as gain. But plant some cabbage. We will, in this brief essay, try to state what we know about growing cabbage for the Philadelphia market.

For an early crop, sow the seed about the second week of September in open ground broadcast or in drills. By the middle of October, the plants should be taken up and transplanted in a cold bed having a Southern exposure, with a border or wind-



SELECTED EARLY SUMMER CABBAGE.

break on the North. The bed should be about $6\frac{1}{2}$ feet wide, so that boards 14 feet long, cut in two, will reach across for covers. These covers should be made by nailing three or four boards together, with a strip across top and bottom, and should be propped open during the middle of the day in winter, except in very cold or stormy weather.

The best varieties for early spring planting are, I think, *J. & S. Earliest*, *Early Jersey Wakefield* and *Early Summer*; these three

will succeed each other if planted at the same time. Cabbage should be planted just as soon as the ground is free from frost, and dry enough to work nicely; better wait a week longer than plant on wet, soggy soil. The best ground for early cabbage is ground that was sod the year before or soil that has not been cropped too frequently. Never raise two crops of cabbage on the same ground in succession; no matter how rich the ground you will have a weak crop the second season. Plant in rows



EARLY WINNINGSTADT CABBAGE.

from $2\frac{1}{2}$ to 3 feet apart and 20 to 24 inches in the row. This may seem close planting to large farmers where land is cheap, but truckers who have but a few acres plant even closer than this. When fit to cut, early cabbage must, of course, be sent to market and sold for whatever it brings. So much for these varieties, and these should all be headed and sold and the ground cleared for some other crop by the middle of August.

For a late summer and fall crop, we prefer the Flat Dutch type. The *Winningstadt* is, however, a good variety, the only

objection being (not a serious one) the heads grow almost too hard, and the core is rather thick. Sow the seed the latter end of March in a cold bed; when a few inches high, transplant in another bed; this will make them hardy and strong. About the middle of May they will be fit to plant out; pull all the



JOHNSON & STOKES' MATCHLESS LATE FLAT DUTCH CABBAGE.

largest plants for the first planting, and two weeks later set out another planting. These crops will succeed the early spring planting, and if the ground has had a previous coat of manure, a sprinkling of guano will be sufficient for a good crop. For late fall and winter cabbage, sow the seed the second week in April; it is not necessary to transplant at this time of year.

Sow in rows not too thick, nor in too rich a soil, and keep free from weeds. We prefer the *Matchless Flat Dutch*, which grows to large size late in the fall and is harder and finer-ribbed than the Drumhead, and the best of keepers. The best soil for late cabbage is good sod ground. About the first of July, or as near that time as possible after a good shower, plough your sod and get the ground ready; mark out your rows, and in the furrow spread well-rotted fine manure, mixed with a little Peruvian guano; close the furrow, and roll it down. After a shower, set out your plants; when fully started, cultivate and keep clean from weeds around the plants with a hoe. This cabbage will head in time for the kraut season. For keeping through the winter, we have planted as late as the second week in August.

Storing.—How to keep cabbage during the winter and late in spring, when there is a scarcity and great demand for it, even in preference to spinach or kale, is very important. It seems to me, farmers and gardeners generally do not yet understand how to keep this vegetable until the demand is good and the supply small. Last fall, we bought for a store the finest Jersey-grown cabbage for \$2.50 and \$3.00 per hundred; and an uncle of mine, who had 14 acres of the finest, could only get \$1.50 per hundred, and no sale for it at that. In February, good cabbage was worth \$10 and \$12 per hundred, and little to be had, excepting some small, scrubby stuff, burst in the head; yet customers bought it, because they could get no other; the Southern cabbage had not yet arrived, and customers always prefer the old to the new, if in good condition. Late in the fall, when winter is about to set in, most farmers plough a deep furrow across the cabbage-field, and gather what they intend to bury on either side and put in the furrow, heads down and roots out. They then plough a furrow on each side, and cover; then plough another furrow, 20 or 30 feet away, according to the amount of cabbage yet remaining on the field, and so on.

When a hard freeze comes they are unable to get it out without great difficulty; the result is they have to wait for a thaw. If the cold be long and intense, the frost strikes the root and goes clear to the heart, and when taken out and left to thaw, it is valueless. We saw some of this kind after a severe winter, in a commission house. We bought some for our store, there being no other to be had; after being a few days in the warm store, it looked as though it had been cooked, not even fit for hog feed. When the frost strikes the heart the entire head is gone. If the winter is open and warm, cabbage buried in this way will not keep; it heats, smothers and ripens, and when taken out becomes yellow and bursts, consequently must be hurried off to market. The question is, How, then, are we to keep cabbage through these extremes for a profitable market? It is not necessary to erect large cold storage-houses. In a few simple words, I will tell my way; those who wish to try it can profit by it: About the second week in November, pull up all cabbage you do not intend to cut, even if not headed; those not yet headed keep by themselves; plough a deep furrow east and west, throwing the ground to the south; begin and lay your cabbage against this furrowed root in the ground, as close as you can, leaving the head to the south. When the row is full, plough a furrow against the cabbage, covering the roots well up to the head; then lay another row of cabbage, and so on, until all is in. Those not yet headed should be laid by themselves; they will keep later, and in open weather will form good heads. Cover with leaves from the woods, if they can be had; if not, salt hay or corn fodder, which can be fed in spring. This done, wait for a demand in the market for your crop; and in the coldest weather a man can go out and cut a wagon-load in a half day. It will always look fresh and crisp, and will keep late in spring, no matter how open the winter.

CABBAGE AND ONION CULTURE.

PRIZE ESSAY BY JAS. MOSS, WESTMINSTER, ORANGE COUNTY, CAL.

With the exception of the potato, these two vegetables are the most important and useful varieties to be found in the culinary vegetable kingdom, and for their successful production, there are three important essentials, viz: *Good seed, suitable soil* and careful and intelligent preparation and cultivation.

ONION CULTURE.

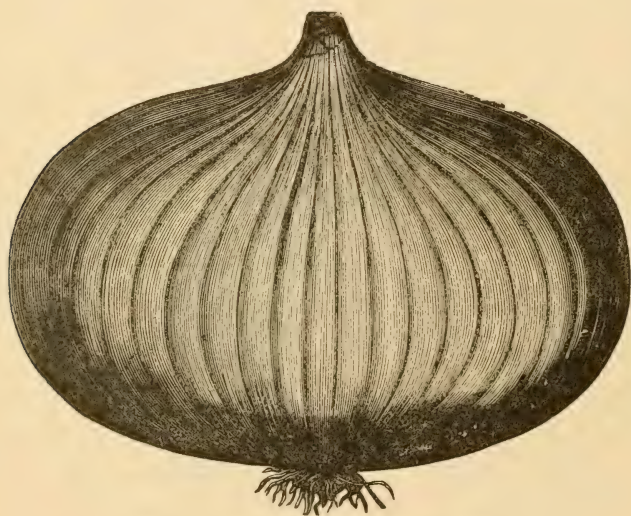
Soil.—The most suitable soil for the successful production of this important vegetable is a rich heavy loam; never select a light sandy soil if you have land of the above description, for, although you may grow nice onions on the latter, you will produce magnificent ones on the former.

Preparation.—It is most important to remember that the onion is a vigorous feeder, delights in deeply-dug and well-manured land; but presuming these remarks to apply to its cultivation upon an extensive scale, we must consider the best method of preparation under the plough.

Last year I grew 26 tons of onions to the acre, and the following is the system I employed in the preparation of the soil: I gave a liberal covering of well-rotted farm-yard manure (the older the manure the better), and I may add here, if you have any long or new manure, stable or otherwise, it will pay you well to have it turned over and have it thrown into a solid pile after being well-saturated with heavy rain; in a few days it will heat and ferment, and when the heating process is finished, the manure will, of course, be short, and much more suitable for

fertilizing purposes, for new manures have a tendency to retard rather than promote the growth of vegetation.

After spreading the manure, I had a couple of ploughs following each other, the latter one turning up the soil from the bottom of the furrow, or in other words sub-soiling; this is most important, as it enables the onions to root much more deeply, and not merely producing larger bulbs, but enabling the crop



EXTRA LARGE RED WETHERSFIELD ONION.

to withstand a longer period of drought than under the ordinary system of single ploughing.

The roots of the onion will grow deeply into the ground where the soil is favorable, a fact not generally supposed by most growers; hence, the advantage of deep cultivation.

It is important to remember the ploughing must be done when the land is in proper condition; it must be merely damp, not wet; and the soil must fall away freely and lightly when

turned over. If your land is not in this condition, you must wait until it is, or your crop will suffer in consequence. After ploughing, run your cultivator or drag through the land, so as to thoroughly pulverize the soil, after which harrow smooth



and level; your land will then be in prime condition for the reception of the seed.

Sowing.—Sow the seed in rows 14 or 15 inches apart, and be sure not to drill too deeply; half an inch is quite sufficient.

This distance between the rows will give you ample room for the frequent application of the hoe or cultivator, which, above all, must not be neglected. Never allow the weeds to overtop the young plants or your crops will be of no account. So soon as there are the slightest signs of germinating weeds, commence at once to cultivate, and whilst your plants are young and growing, cultivate or hoe as deeply as you can, not merely for the purpose of exterminating the weeds, but, what is of equal importance, keeping the soil well open; thus allowing the free circulation of air to the roots and the heat rays of the sun to penetrate—two conditions indispensable to a healthy, vigorous growth, equally applicable to the vegetable as well as the animal kingdom.

Thin out the young plants so soon as you can handle them (the sooner the better) to a distance according to the variety you are growing, the location and time of sowing; if an early variety, such as *Ivory Ball*, *Extra Early Pearl* or other early white varieties, to about 4 to 5 inches; but if growing the large late varieties for late autumn and winter use, such as *Philadelphia Yellow Globe Danvers*, *Extra Large Red Wethersfield* and also the wonderful new spanish varieties, *Madrid Giant* and *Spanish King*, should recommend a distance of from 7 to 10 inches. I always thin out to fully 10 inches, and grow onions weighing over 5 pounds each; indeed, the crop resembles more that of a field of turnips when matured, and I am convinced every grower may do likewise, providing he adopts the same liberal methods.

If you live in the South or Southern California, onions may almost be grown all the year round, but they make the finest crops sown from December to February, and require no irrigation. Last year my main crop was sown in February and harvested in August, but the early varieties can be matured and shipped in April and May. If you live in the Northern States,



sow your onions as soon as the spring weather commences, and your land becomes in condition, for the late varieties will require all the time you can give them. If your climate is more temperate, make a sowing of the late varieties in the month of August; they will become strong plants and secure a good root-hold before the winter frosts, when you can prepare your land and transplant in the spring, and I venture to say you will have onions as large and handsome as those produced under more favorable climatic conditions.

Harvesting.—It is somewhat difficult to pronounce the time of harvesting this crop, which must be left in a great measure to the judgment and sagacity of the grower. It is, however, but a simple matter of observation as to the time the bulbs are ripe, and when stored (if not sold from the field) be sure and have your bulbs perfectly dry; do not leave them long on the ground after being drawn, and be careful to store in a dry, cool place, well ventilated.

Onions are also largely grown from sets, but as the sets are themselves produced from seed, these remarks will be equally applicable to their cultivation in this form.

Remarks.—The widely-recognized medical and health-giving properties of the onion are yearly bringing it more and more into general use. Many, if not all, our most eminent physicians declare it the most healthy of all foods, and recommend its daily use in some form in every household.

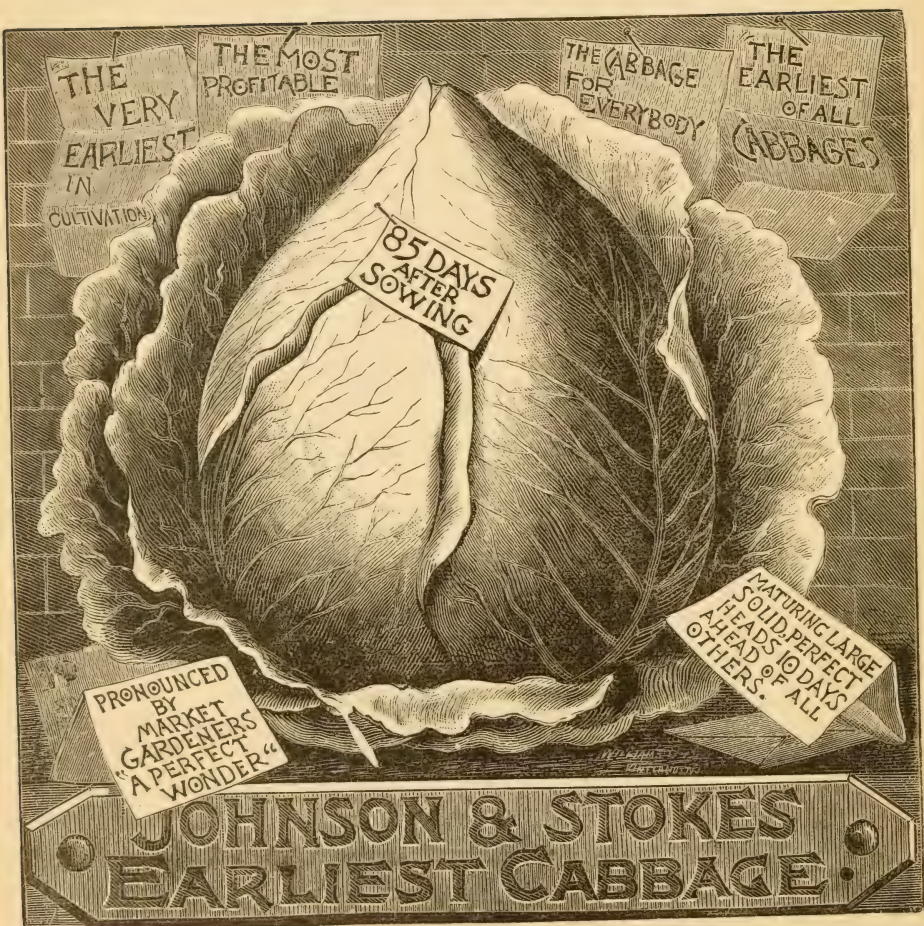
The *British Medical Journal* says: "If onions were eaten every day by children, such diseases as scarlet fever, diphtheria and other throat affections would almost be unknown." Let us, therefore, hope to see this most useful vegetable exalted to that high position it deserves to fill in every household.

CABBAGE CULTURE.

Sowing the Seed.—The ground selected upon which to grow the young plants should be of the richest possible kind; a moderately light loam is most suitable, and this should receive a very liberal coat of well-rotted farm-yard manure, or perhaps better, where procurable, an equal covering of well-decayed leaf mould and also a sprinkling of coal soot will be found of great value, not merely as a fertilizer, but a protection against wire-worm and other insect pests so destructive to young plants in some soils. Do not fail to work your seed-beds well before sowing; it is by far the best to dig it; a four-pronged potato-fork is what I always use for this purpose; it not merely turns over the soil, but also thoroughly pulverizes it, which is absolutely necessary to the growth of sound healthy plants.

When your seed-bed has thus been prepared and well raked over, the seed can be sown in shallow drills $\frac{1}{2}$ inch deep in rows 12 inches apart, or it may be sown broadcast and well raked in; the former is preferable on account of weeding and hoeing, but remember at all times to avoid overcrowding; this is a most serious mistake made by many growers. I have often seen as much seed crowded upon a rod of land as ought to have had an area of twenty, with, of course, the result of ruining the whole of the plants, causing them to grow long, slender and spiry; in fact, so weak, that upon removal into the field, their vitality is gone, and great numbers will never grow, and in case of those that do, the heads will be small and inferior. Under circumstances similar to the above, the unoffending seedsman is blamed for supplying inferior seed, etc., when of course the whole secret is entirely due to the ignorance of the grower.

It is quite as necessary for growing plants to have proper breathing room and their full share of nourishment from the soil as it is for the proper feeding of young animals or children.



If you desire fully-developed healthy animals, each must have its allotted share of pasture or other food; also, if your children are to be healthy, they must be properly fed and have the full benefit of pure, fresh air. Therefore, treat your growing crops in a like liberal and intelligent manner, and depend upon it you will reap your full reward; "a good article is always half sold," and young cabbages raised in this manner will be strong, healthy and vigorous.

In an extensive country like the United States of America, extending almost from the Tropics to the Frozen Zone, it is practically impossible to lay down a rule of time for sowing and planting. Every grower knows the climatic condition and peculiarities of his own district, and upon this knowledge he must trust for guidance in these matters. In the South, of course, the seed can be sown any time and planted out when ready, but they always thrive best in the early spring. In the temperate regions of the North, the seed may be sown in a well-sheltered location in the months of August or September. When under ordinarily favorable circumstances, the early spring will find you in possession of abundance of fine healthy plants.

Early summer cabbages command the best prices, and in point of quality and early production we have found none to equal *Johnson & Stokes' "Earliest Cabbage,"* but, of course, in order to keep the ball rolling, we must also have a good second early and late variety, such as *Genuine Sure Head*, *Short Stem Drumhead* or *Diamond Winter* for late, and *Market Gardeners' No. 2* for second early.

After the production of strong healthy plants our work is straightforward and simple. For the earliest varieties, select a piece of light, rich sandy land, for though cabbages grow best in heavy rich land, as early maturity is our object, the former is best suited to our purpose, as the light land admits more freely and retains longer the warm rays of the sun, and thereby

promotes a more rapid growth. For the later kinds, I would certainly recommend the heavy soil; plough well and deep and thoroughly pulverize; the cabbage likes rich, well fertilized soil, and the roots must be able to branch out freely in every direction. If your land has been well prepared the previous fall, so much the better.

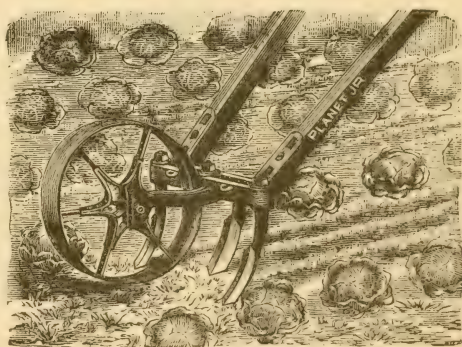


Plant your cabbages deeply the full length of the stem, press the soil well to the roots, and in the case of the early kinds have your rows about 2 feet apart and your cabbages about 18 inches apart in the row; the later and larger kinds should be grown in rows fully 30 inches or even 3 feet apart, and in the rows about 24 inches; do not overcrowd; you will gain in weight and quality far in excess of what you lose in numbers.

Do not neglect to cultivate and hoe, keep your plants clean and the land well open for both sun and air, and your crop will be assured.

No vegetable will thrive in water; they may exist for a time, but in case of heavy rains it is always well to arrange your rows according to the natural drainage of the field, when you can hill up your growing plants with the cultivator and allow the surface water to drain off as soon as possible.

Every grower knows when and how to sell his crops. In our large cities, there are thousands of people waiting for the farmer's produce, and to whom a cabbage and an onion are almost as indispensable as the air. In these days of enterprise and progression, with our railway and water services, the farmer, no matter how remote his farm, is, so to speak, practically near to all our best markets. If you have a large crop to dispose of, place yourself in communication with your agents, and gain all the information you can as to prices, supply, etc., in our large cities, and be ready to fill an order promptly to the most favorable market. Do not cut your cabbages as you come to them; place your hand upon each head, and select only those which are firm and well matured, leaving all others for a second or later shipment.



SINGLE-WHEEL HOE.
CULTIVATING CABBAGE WITH THE "PLANET JR."

Remarks.—A few comments concerning the production of good seeds may, perhaps, be allowed in connection with the above. I would advise, by all means and at all times, to buy your seeds from reliable seed-growers. The production of pure

seed can only be accomplished by the most watchful and experienced care; the ever-watchful eye of the seed-grower is ready to detect and remove any foreign or bastard strain that may make its appearance among his crop, and thereby securing for the public good a strain of seed pure and true, so far as human efforts can prevail. Onion seed is also grown from the most perfect bulbs, and none but the experienced in this work ought to undertake the responsibility of supplying the market with seeds, for the loss, pecuniarily, to growers through the sale of impure seeds is more than can be easily comprehended. I shall never forget an incident that occurred to me some fifteen years ago. I had a favorite strain of cabbages, and I resolved to plant out a few for seed, which I did in my garden. All went well and I had an excellent crop of seed, harvested it and sold several lots; the remainder I sowed upon a rood of land, and the following spring I sold thousands of plants, besides planting out quite a lot myself; but judge of my dismay, as the season advanced, to find I had not a single cabbage—not one came to a head. Of course, I heard of it from all my customers, and the loss I inflicted upon them (unknowingly, of course) was more than I can here estimate. Upon investigation, I found my neighbors' gardens had all kinds of cabbages and greens going to seed at the same time, such as Brussels Sprouts, Savoy, curled greens, and other of the cabbage tribe, when, of course, my seed had been inoculated and consequently worthless. This experience, I can assure you, proved an effectual warning, and I have ever since bought my seeds direct from reliable seedsmen.

THE FAMILY VEGETABLE GARDEN.

Preparation of the Ground.—In order to secure a fair return in seasonable crops, for the labor and outlay invested, it is essential that the soil of the vegetable garden should be well underdrained, thoroughly trenched or subsoiled, and enriched by a judicious application of fertilizing material.

For those who have not already formed their plans in laying out a *Vegetable Garden*, and cannot avail themselves of such a slope of ground or quality of soil as they desire, must take up with such as may be within their reach. If practicable, a vegetable garden should have a warm and southeasterly exposure. But when the ground slopes to the North and West, it is important to have the garden located on the sunny-side of an orchard or out-buildings. Every person, previous to building, should select the most desirable situation for the vegetable garden.

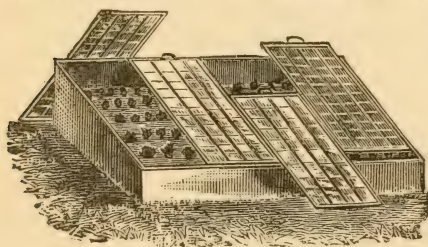
Laying out the ground, a border may be formed around the whole garden, from 5 to 10 feet wide, according to the size of your ground; next to this border a walk may be made from 3 to 6 feet wide, and divide the middle in squares or fancy beds, as may be desired, on the sides of which a border 3 to 4 feet wide may be laid out, in which the various kinds of small fruits may be raised to advantage. The centre beds may be planted with all kinds of vegetables, the outer or fence border, for raising the earliest fruits and vegetables, also serves for raising and pricking out such young plants, herbs, and cuttings as require to be screened from the intense heat of the sun, and the very early vegetables which can be protected from slight frosts.

The mode of laying out the ground is a matter of taste, and may be left to the gardener himself to determine, the form

being of little importance in the production of useful vegetables; and it matters not if the ground is laid out in beds of 4 or 10 feet wide, provided it is well worked and kept neat and free of weeds.

The exposure of a garden has much to do with the early maturity of the crops; an exposure to the morning sun is desirable. The soil must be in a friable state to secure the prompt vegetation of the seeds, and the destruction, or rather prevention, of weeds, is one of the most desirable results of frequent stirring of the surface. Soils are susceptible of alteration and improvement in texture; heavy clays can be rendered open and porous, and light, sandy soils may be consolidated and rendered more retentive of moisture.

Garden Requisites.—There are several aids to the economical management of the garden, which are almost indispensable; one of these is the *hot-bed frame* for the forwarding of plants



for early planting. A frame, such as is shown in the illustration, may be made of various sizes, according to the size of garden, from four sashes upwards. The length of sash is generally $6\frac{1}{4}$ feet by $3\frac{1}{4}$ feet wide, the size of glass

6 by 8 inches, including sash bearers, making the entire frame of four sashes 13 feet by $6\frac{1}{4}$ feet. The best and most convenient sash have no cross-bars, but are made with a groove the length of sash, the glass slides in from below, avoiding the use of putty. When the one bar is filled with glass, it is only necessary to put a tack in the bottom bar, to keep the glass from sliding down. The frame should have a Southern or Southeastern exposure, should be made up with fresh horse manure and a few leaves mixed with it; this must be laid in a heap preparatory to being used,

and when in a proper state of fermentation, is prepared for the reception of the frame. Ten inches of rich loamy soil must be spread over the manure, then cover the frame with the sashes, and after standing a few days to allow the rank heat and steam to pass off, the seed can be sown. Where the ground is well drained, a better plan is to dig out a space the size of the frame, from 1 to 2 feet deep, according to the season and the heat required, in which the manure is placed, care being taken to pack it firmly and evenly.

The cold frame for wintering Cabbage, Cauliflower, Lettuce Plants, etc., should be constructed of 1 inch boards, 1 foot high at the back by 9 inches high in front and 6 feet wide; 5 short posts to the length of 16 feet boards will answer to keep in position. The shutters should be 6 feet 4 inches long by 3 feet wide, made of common rough boards. The soil should be enriched by old and well-decayed manure, unless in good order; the object being to preserve and not to grow the plants during the winter. Give plenty of air by raising the shutters every mild pleasant day, but on no consideration open the frame or expose the plants to the sun when the ground or plants are frozen, as it will destroy them.

Very many who read this article on hot-beds and cold-frames are perhaps never likely to have one. To such there is an excellent substitute on hand in most dwellings, in the kitchen or basement windows, facing south or east, inside of which is a temperature usually not far from that required for the vegetation of seeds, and where seeds of early vegetables, or tender plants for the flower border, may be raised nearly as well and with far less attention than in a hot-bed.

When and What to Plant.—For a succession of crops, observe the following list, that may be sown in the months designated from February to October in the vicinity of Philadelphia. These

directions may, however, be applied to all other parts of the United States, by a minute observance of the difference in temperature.

February. Sow in Hot-beds.—Broccoli, Early Cabbage, Cauliflower, Carrot, Celery, Egg-plant, Early Lettuce, Parsley Peas, Pepper, Radish and Tomato.

March. Sow in Hot-beds.—Early Beans, Early Beets, Broccoli, Brussels Sprouts, Early Cabbage, Carrot, Cauliflower, Celery, Cucumber, Egg-plant, Kohl-rabi, Lettuce, Parsley, Pepper, Potatoes, Radish and Tomato.

Sow in the Open Ground when the Weather is Favorable.—Beet, Carrot, Cress, Kale, Leek, Onion Sets, Onion Seed, Extra Early Peas, Potatoes, Radish, Spinach and Early Turnips.

April. Sow in Hot-beds.—Sweet Corn, Cucumber, Egg-plant, Melon, Pepper and Tomato.

Sow in the Open Ground.—Asparagus, Beet, Broccoli, Brussels Sprouts, Early Cabbage, Carrot, Cauliflower, Celery, Cress, Endive, Kale, Kohl-rabi, Leek, Lettuce, Onion Sets, Onion Seed, Parsley, Parsnip, Peas, Potatoes, Radish, Spinach, Sage, Salsify and Early Turnips.

May. Sow in the Open Ground.—Artichoke, Asparagus, Bush Beans, Pole Beans, Beet, Broccoli, Brussels Sprouts, Late Cabbage, Carrot, Cauliflower, Celery, Sweet Corn, Cress, Cucumber, Endive, Kale, Kohl-rabi, Leek, Lettuce, Melon, Onion Sets, Onion Seed, Parsley, Parsnip, Wrinkled Peas, Potatoes, Radish, Rhubarb, Salsify, Long Standing Spinach, Squash, Tomato, Early Turnips and all kinds of Herbs.

June. Sow in the Open Ground.—Bush Beans, Pole Beans, Lima Beans, Beet, Brussels Sprouts, Late Cabbage, Savoy Cabbage, Carrot, Cauliflower, Sweet Corn, Cucumber, Cress, Endive,

Kohl-rabi, Lettuce, Melon, Nasturtium, Okra, Peas, Potatoes, Pumpkin, Radish, Salsify, Squash and Herbs.

July. Sow in the Open Ground.—Bush Beans, Beet, Carrot Sweet Corn, Corn Salad, Cucumber, Endive, Gherkin, Lettuce, Nasturtium, Okra, Early Peas, Pumpkin, Radish, Squash, White and Yellow Turnip and Ruta-baga.

August. Sow in the Open Ground.—Bush Beans, Corn Salad, Cucumber, Endive, Lettuce, Early Peas, Radish, Spinach and Turnips.

September. Sow in the Open Ground.—Cabbage and Cauliflower Seeds, to be transplanted in Cold Frames, Corn Salad, Cress, Kale, Lettuce, Mustard, Winter Radish, Spinach and Early Turnips.

October. Sow in Frames Under Glass.—Cauliflower, Cabbage, Lettuce and Early Radish. Spinach can still be sown in the open ground if it has been neglected last month.

REMARKS ON THE FAILURE OF SEEDS.

From a conviction that the *Seedsman's fair reputation is often unjustly defamed*, through the failure of seeds, we would with brevity state some of the causes.

That some cultivators, through ignorance or forgetfulness of the fact that the products of a garden, being natives of various soils and climates, require peculiar management, deposit their seeds in the ground at an improper season.

The early and most hardy species and varieties should not be planted until the ground can be brought into good condition, as some species of plants, that in an advanced stage of growth will stand a hard winter, are often cut off by a very slight frost while young, especially if exposed to the sun after a frosty night.

That some species of seeds, such as Beans, Beets, Cabbage, Lettuce, Radish, Salsify, Turnip, etc., being from their nature apt to vegetate quickly, are often destroyed while germinating through variableness of the weather, and some are liable to be devoured by the insects in forty-eight hours after they are sown, and before a plant is seen above the ground, unless a suitable remedy is applied in time to annoy the insects.

That some species, such as Carrot, Celery, Leek, Onion, Parsley, Parsnip, Spinach, etc., being naturally of tardy growth, taking in unfavorable seasons from two to three or four weeks to vegetate, are apt to perish through incrustation of the soil, or other untoward and unaccountable circumstances, which cannot always be controlled.

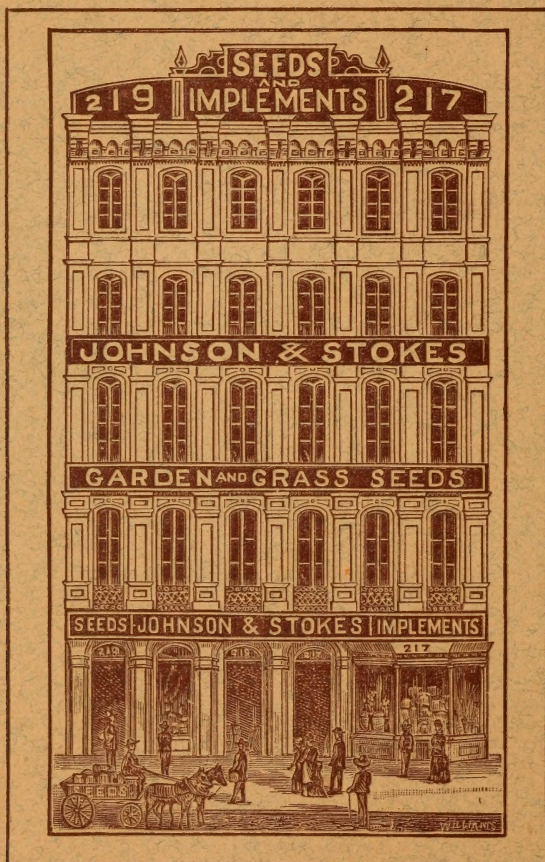
That the failures often occur through Seeds being deposited too deeply in the ground, or left too near the surface. Sometimes, for the want of a sufficiency of seed in a given spot, solitary plants will perish, they not having sufficient strength to open the pores of the earth, and very frequently injudicious management in over-manuring and improperly preparing the soil will cause defeat.

That in some sowings of seed made during dry weather, a total failure often occurs from neglecting to roll or firmly press the soil after sowing, so that when they germinate the action of the heat and drought may not affect the germ. We are satisfied that thousands of pounds of Turnip, late Cabbage and other Summer-sown Seeds are annually lost from this neglect. Observe never to tread or roll the soil after sowing, when the ground is wet.



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